

**Remarks**

Entry of the amendments presented, reconsideration of the application, and allowance of all pending claims are respectfully requested. Upon entrance of this amendment, claims 1-18 will be pending.

By this amendment, FIG. 3 is revised to clarify the relationship between transaction manager 18 and database management system 30. Support for this revision can be found, for example, at p. 12, lines 19-21 of applicants' specification. A replacement drawing sheet for FIG. 3 and an annotated sheet showing changes to FIG. 3 are submitted herewith.

Additionally, independent claims 1 & 13-15 are revised to further characterize the changes to the files of the hierarchical file system effectuated by the transaction functionality and to clarify that these changes are consistent with changes to resources related to those files. Support for the claim amendments can be found throughout the application as filed. For example, reference FIG. 3 and the related discussion at page 12, line 3 – page 13, line 9 of applicants' specification. No new matter is believed added to the application by any amendment presented.

The final Office Action rejected claims 1-17 under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. Applicants note that the Advisory Action mailed August 19, 2003 stated that this rejection was withdrawn.

Substantively, claims 1-3 & 10-17 were rejected under 35 U.S.C. §103(a) as being unpatentable over Schmidt et al. (U.S. Patent No. 6,006,229; hereinafter, "Schmidt") in view of Balabine et al. (U.S. Patent No. 5,937,406; hereinafter, "Balabine"); claims 4-8 were rejected under 35 U.S.C. §103(a) as being unpatentable over Schmidt in view of Balabine, and further in view of Coleman et al. (U.S. Patent No. 6,032,154; hereinafter, "Coleman"); and claim 9 was rejected under 35 U.S.C. §103(a) as being unpatentable over Schmidt in view of Balabine, and further in view of Khalidi et al. (U.S. Patent No. 5,561,799; hereinafter, "Khalidi"). Each of these rejections is respectfully, but most strenuously, traversed to any extent deemed applicable to the claims presented herewith.

Applicants recite a technique for managing a hierarchical file system that includes providing transaction program means arranged for cooperation with the hierarchical file system and with one or more managers. The transaction program means implements transactional functionality to effectuate consistent transactional changes to one or more files of the hierarchical file and to one or more resources managed by one or more managers, wherein the one or more resources managed by the one or more managers is related to the one or more files of the hierarchical file system (e.g., claim 1; see also FIG. 3).

Advantageously, the consistent transactional changes (e.g., commit and/or rollback facilities) provide the “all or nothing” persistence paradigm of transactions to updates of files in a hierarchical file system and updates to various resources related to those files in the hierarchical file system (e.g., data in a database). For example, in the case of a commit process, both the file in the hierarchical file system and a related resource are updated and made persistent. In the case of a rollback, for instance, none of the changes to the file and to the related resource are made persistent.

Thus, in applicants’ claimed invention, a transactional change to a file in a hierarchical file system is consistently made to a resource (e.g., data in a database) that is related to the file. This is very different from the teachings of Schmidt and Balabine, either alone or in combination.

For example, Schmidt describes an Xbase transaction processing system that implements transaction behavior while protecting the integrity of an Xbase file set, for which there was no conventional transactional support (see Abstract and col. 3, lines 15-16 thereof). In Schmidt, the transactional support is limited – it is directed to changes to files in an Xbase file set only. For instance, col. 7, lines 27-36 of Schmidt describe only Xbase file set changes relative to commit or rollback commands. A careful reading of Schmidt reveals no transactional processing that changes data (or any other resource) related to the Xbase file set being changed, let alone changes to resources related to files of a hierarchical file system. Moreover, Schmidt lacks any description or suggestion of transactional changes to the Xbase file set (or to files of a hierarchical file system) together with consistent changes to resources related to the Xbase file set (or the files of a hierarchical file system).

In contrast, transactional functionality in the present invention is not similarly constrained. Instead, applicants' recited invention recites the transaction program means implementing transactional functionality to effectuate consistent transactional changes to one or more files of the hierarchical file system and to one or more resources managed by the one or more managers, wherein the one or more resources are related to the one or more files of the hierarchical file system. For example, a library of video files can reside in a hierarchical file system while descriptive information of the video files (i.e., data resources related to the video files) reside in a database (see FIG. 3). If a video in this example is altered, the related description is altered consistently to reflect the changed video content (see specification, p. 12, line 26 – p. 13, line 9).

To summarize, Schmidt does not teach or suggest transactional changes to files in a hierarchical file system and to resources related to those files, nor does Schmidt describe or suggest such transactional changes which are consistent, as recited by the claims presented herewith. Thus, Schmidt is deficient relative to multiple features of applicants' claimed invention, as presented herewith.

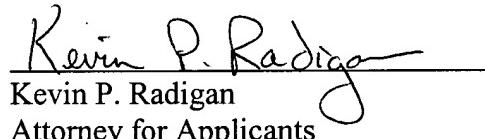
Additionally, Balabine does not overcome the deficiencies of Schmidt as applied to the present invention. Balabine discloses a technique for accessing database information by transforming a file system request from an application into a query of a database (see Abstract thereof). Balabine does not disclose or suggest transactional changes at all, let alone the consistent transactional changes to files in a hierarchical file system and to resources related to those files, as recited by the claims presented herewith.

Since both Schmidt and Balabine fail to teach or suggest multiple aspects of applicants' claimed invention, applicants respectfully submit that their invention is not obvious over the combination of Schmidt and Balabine. Based on the foregoing, applicants respectfully request an indication of allowability of claim 1, as well as the other independent claims. The dependent claims are allowable for the same reasons as the independent claims, as well as for their own additional features.

New dependent claim 18 recites that the one or more resources managed by the one or more managers comprises data in a database. None of the applied art teaches or suggests data in a database related to the one or more files of the hierarchical file system, let alone transactional functionality effectuating consistent transactional changes to both the files of the hierarchical file system and the related data in the database. For example, Schmidt describes transactional processing applied to an Xbase database, but fails to teach or suggest data in Xbase database related to files in a hierarchical file system, let alone consistent transactional changes to such files and to related data in a database, as recited by the claims presented herewith. For all these reasons, new claim 18 is believed to recite patentable subject matter.

All claims are believed to be in condition for allowance and such action is respectfully requested.

Should the Examiner wish to discuss this case with applicants' attorney, the Examiner is invited to contact applicants' representative at the below-listed number.

  
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ANNOTATED SHEET SHOWING CHANGES

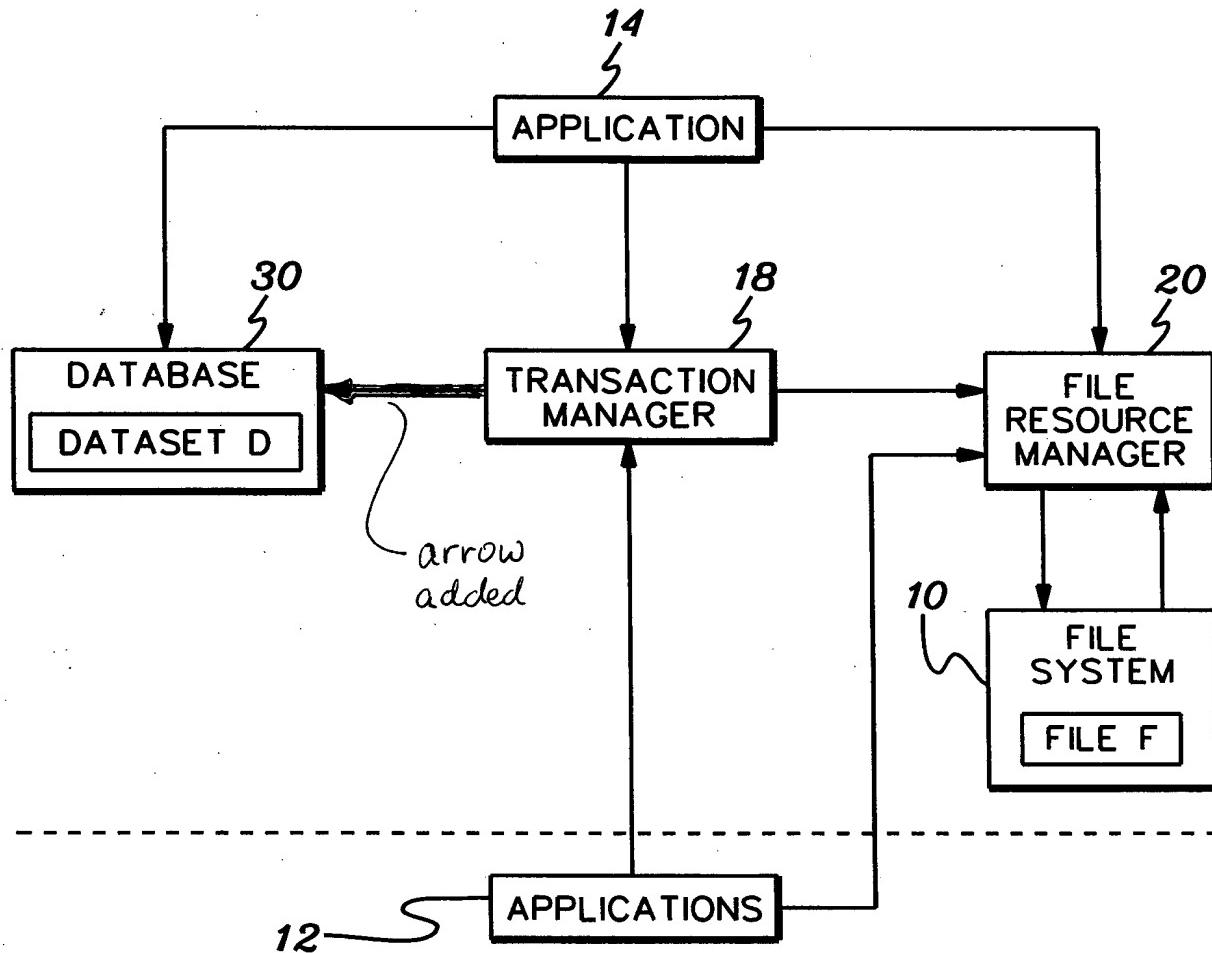


fig. 3